

## CLAIMS

1. A router device comprising:

a connection processing section for performing a connection process with a base station in an external network;

5 a lower-layer information acquisition section for acquiring connection information with the base station, from the connection processing section; and

a route judgment section for judging, when receiving a packet destined for a communication device in an external network from a radio terminal device in a same local network, the base station as a transfer destination in a case the connection information acquired from the lower-layer information acquisition section is indicative of a connection with the base station, and judging a transfer destination by looking up a routing table in a case the connection information is indicative of a non-connection with the base station.

2. A router device according to claim 1, further including a buffer for storing received data and

a connection instructing section for instructing the connection processing section to have a connection with the base station,

wherein the lower-layer information acquisition section further acquires connection information of whether or not it is connectable with the base station of the external network, and

when the route judgment section receives a packet destined for a communication device of the external network from a radio terminal device in the same local network, in a case the connection information of from the lower-layer information acquisition section is indicative of being not connected with but connectable with the base station, the received packet is held in the buffer, and the received data in the buffer is transferred to the base station after the connection instructing section instructed the connection processing section to have a connection with the base station and the connection processing section completes a connection with the base station.

3. A router device comprising:

a mobile IP processing section for registering a position to a home agent device set up on the Internet; and  
a route judgment section for judging, when receiving a packet destined for a communication device in an external network from a radio terminal device in a same local network, the home agent apparatus as a transfer destination in a case there is an entry for the home agent device within a binding update list of the mobile IP processing section, and judging a transfer destination by looking up a routing table in a case there is no entry for the home agent device within a binding update list.

4. A router device according to any one of claims 1 to 3, wherein the route judgment section, in a case a next hop router is given as another router device in the same local network

when looking up a routing table, inquires a radio terminal device, as a source of the received packet, whether to transfer the received packet to the next hop router.

5        5. A router device according to claim 4, wherein the route judgment section transfers the received packet to the next hop router in a case of a response for permission from the radio terminal device and discards the received packet in a case of a response for non-permission.

10       6. A communication method on a local network having a plurality of radio terminal devices and a plurality of router devices for communication with a communication device existing on the Internet, the communication method characterized in that:

15       the router device, when receiving a packet from a radio terminal device in a same local network during connection with a base station external of the local network, transfers the packet received to the external base station with which the router device itself is connected, regardless of a content of a routing table.

20       7. A communication method comprising:  
a step of transmitting a packet destined for a communication device in an external network, from a radio terminal device within a same local network to a router device;  
a step of detecting a connection state of between the router device and the base station of the external network when  
25       the router device received the packet; and

a step of transferring the packet to the base station in a case connected with the base station, and transferring the packet according to a routing table in a case not connected to the base station.

5           8. A communication method comprising:

a step of transmitting a packet destined for a communication device in an external network, from a radio terminal device within a same local network to a router device;

10           a step of detecting a connection state of between the router device and the base station of the external network when the router device received the packet; and

a step of transferring the packet to the base station in a case of being connected with the base station and judging whether or not the router device is in a connectable state with the base station external of the local network in a case of not being connected to the base station, whereby connection processing is performed with the base station when connectable and the packet is transferred according to a routing table when not connectable.

20           9. A communication method on a local network having a plurality of radio terminal devices and a plurality of router devices for communication with a communication device existing on the Internet, the communication method characterized in that:

25           the router device, when receiving a packet from a radio terminal device in a same local network in a case there is an

entry for a home agent device in a binding update list,  
transferring the packet received to the communication device  
via the home agent device through use of reverse tunneling based  
on mobile IP, regardless of a content of a routing table.

5           10. A communication method comprising:

          a step that a router device registers a position to a  
home agent device existing on the Internet;

          a step of transmitting a packet destined for a  
communication device in an external network, from a radio  
10 terminal device in a same local network to the router device;  
and

          a step that, when the router device received the packet,  
the packet is transferred to the communication device via a  
home agent device by use of reverse tunneling based on mobile  
15 IP in a case there is an entry for a home agent device within  
a binding update list of the router device, and transferred  
according to a routing table in a case there is no entry for  
the home agent device within the binding update list.